

5 **INTEGRATED CIRCUIT PACKAGE AND METHOD FOR A
PBGA PACKAGE HAVING A MULTIPLICITY OF
STAGGERED POWER RING SEGMENTS FOR POWER
CONNECTION TO INTEGRATED
CIRCUIT DIE**

10 **ABSTRACT OF THE DISCLOSURE**

15 A BGA package having a multiplicity of power segments configured for
power connection to integrated circuit die is disclosed. The BGA package
substrate includes an integrated circuit die and a ground ring. The substrate also
15 includes a first power ring with a plurality of spaced apart first power ring
segments arranged around the die. A second power ring having a plurality of
spaced apart conductive second ring segments is also formed around the die. A
plurality of vias that penetrate through the substrate are provided to accommodate
electrical connections to the segments of the first and second power rings and to
20 the ground ring. The package includes bonding wires for connecting the die to
the first and second ring segments and ground ring. Additionally, the package is
commonly encapsulated to protect the die and wires. In some implementations,
the conductive first ring segments are arranged in staggered configuration relative
to the conductive second ring segments with each of the first ring segments
25 having a conductive tab configured so that it passes through spaces between the
conductive second ring segments. The tabs electrically connecting the first ring
segments to vias.